

ABSTRACT

A membrane separation module (10) has a shell (11) having inlet port (20), outlet port (21) and a plurality of membrane units (12) disposed therebetween. Each membrane unit (12) has a plurality of elongated membrane elements (13), with at least a portion of each membrane element (13) having a semipermeable surface to permit selective permeation of one or more components of a multi-component feed fluid. The plurality of elongated membrane elements (13) are attached to collecting manifolds (16) (17), with one of those manifolds (16) (17) being unrestrained, permitting axial movement of each membrane element (13) in response to temperature changes. At least one manifold (16) (17) from each membrane unit (12) is in fluid communication with a manifold (16) (17) from one other membrane unit (12).